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mits of several varieties, according to the nature of the sections of the cone parallel to its principal planes, and the position of its internal axis. This curve may be made to furnish, by means of its arc, a geometrical representation of the three species of elliptic trancendents, including the two cases of the third.

In the course of the investigations alluded to, Mr. Roberts was also led to consider two species of the curve called the spherical conic, which appear to possess many remarkable analogies to the properties of the equilateral hyperbola. These cases occur when the axis minor is a quadrant, and when the semi-axes a and b are connected by the relation

$$\sin a = \tan b.$$

The following extract of a letter from Andrew Durham, Esq., to the Marquess of Downshire, was read to the Academy by Sir William Betham, with his Lordship's permission:

" *Belvedere, Lisburn,*
" *29th December*, 1841.

" My Lord,

" As your Lordship and party were prevented from attending the interesting search at Drumboe Tower, I beg to inform your Lordship that about seven feet below where we commenced excavating, we found a skeleton, *in situ*, lying by compass N.W. by W., wanting both legs and feet from the knees, and also the right arm. The earth we removed was of a blackish colour, as if composed of decomposed vegetable matter, full of stones, many of which, from the mortar on them, must have fallen from the top and the entrance, which is about five feet from the external level; and on the eastern side, it also abounded in bones of different animals, and a few bones seemingly of black cattle. Under this earth we came to a surface of mortar; this induced us to proceed still more cautiously; and immediately under this mortar we first discovered the skull, in good preservation, together with the teeth; we then laid bare the whole body, a work of no little difficulty, from the wetness and adhesiveness of the soil. We were much inclined to leave the body as we found it, but were obliged to raise it to continue our search. We excavated to the very foundation of the Tower, without finding anything else, with the exception of many pieces of charcoal. The skull was lying on the right side, and the dorsal and cervical vertebræ were considerably decomposed.

" The diameter of the Tower inside is nine feet. The skeleton was not placed exactly in the centre, but the head was so near the side that there would have been room sufficient for the body with its legs and feet, had it been placed in the centre. The mystery seems increased by the want of the arm. None of the bones found had been acted on by fire.

" There was *no flag-stone*, nor floor either above or below the body. The layer of mortar seems intended as a substitute for a floor.

" There were several jawbones, apparently pigs', from the size of the tusks; but no skulls, with the exception of one of a bird.

" The external circumference of the Tower is fifty-one feet; the wall being four feet thick.

" I believe I have mentioned every thing of importance; I leave others to draw conclusions."

Sir W. Betham stated that he considered this tower had been opened before, and that the skeleton was then dislocated. The propensity of searching for treasure may have led to the violation of this tomb, as it had to that of others, as Cashel, from which the bones had all been removed; but at Ardmore and Cloyne the skeletons were found really *in situ;* the floor of mortar, both above and below, being perfect. The Tower of Abernethy in Scotland has also been examined with the same results as at Ardmore and Cloyne. The stones, with mortar attached to them, found in Drumboe, were certainly part of the concrete course of mortar covering the earth in which the body reposed, which was broken up by the violaters of the tomb.

A notice of the occurrence of a Metallic Alloy in an unusual state of aggregation and molecular arrangement, was read by Robert Mallet, Esq., M. R. I. A.

Amongst the several classes of substances which chemistry at present considers as simple, the metals stand preeminently marked by their almost invariable possession of a nearly fixed and striking group of sensible qualities, which together constitute the well known "metallic character." Some of these, such as lustre and fusibility, are common to every metallic body; but by the occasional variation of nearly every other sensible quality of the metals, the law of continuity remains unbroken, which unites them in different directions with the other classes of material bodies. Thus opacity, which is probably mechanically destroyed in gold leaf, is lost in selenium; and so, in this most prevalent of their properties, the metals, through tellurium, selenium and sulphur, become translucent, and mingle with the nonmetallic elements. So also their solidity, at common temperature, is lost in mercury; their great density, in sodium and potassium; their malleability, in bismuth, antimony, and arsenic; while in tellurium, the power to conduct electricity is nearly wanting; and, lastly, hydrogen, to all intents a metal in its chemical relations, yet possesses not a single physical quality in common with these, but exists as an invisible and scarcely ponderable gas.

But although *different* metals thus vary in sensible qualities, those which collectively belong to *the same* individual metal are as remarkable for their permanence.

Unless selenium be admitted to be a metal, no approach to dimorphism has hitherto been recognized in any body of the class; the only case recorded, that by Dufresnoy, of the occurrence of cast iron in cubes and rhomboids, not having